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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/595,618
Filing Date: May 01, 2006
Appellant(s): DURAND ET AL.

Robert M. Barrett
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/05/10 appealing from the Office action mailed 07/15/10.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1, 3, 5-24 are pending and rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN

REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

JP 2001-122237	Hideaki et al.	05-2001
U.S. 5,614,148	Beck et al.	03-1997
U.S. 2003/0031814	Hutchinson et al.	02-2003
U.S. 2002/0185212	Schaupp et al.	12-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

35 USC § 112 6th paragraph

Applicant has used "means for" language in claim 6, (closing means for closing off). This language meets the three prong requirement for 6th paragraph language. MPEP 2181(I). The examiner will consider the "means for closing off" language to be read upon by the "caps or sealed membranes" disclosed in the instant specification at paragraph 18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 5-11, 13-19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideaki et al. (JP 2001-122237), see translation, in view of Beck et al. (U.S. 5614148) in view of Hutchinson et al. (U.S. 2003/0031814).

Regarding claims 1, 6, 15-17 and 23 and 24, Hideaki et al. discloses a bottle for packaging a liquid beverage product (Fig. 1 and [0001]). The bottle is formed by stretch blow molding [0008] and given that the general inventive concept is for reduced thickness walls as a result of the stretching, the stretch would take place at higher than normal stretch ratios. The bottle has a neck, which functions as a closing means and a distribution means, side walls and a bottom (Fig. 1). The bottle is disclosed as having ribs at intervals along the wall to provide

deformation strength ([0006]) and in general the filled bottle would be substantially incompressible by hand. The diameter of the neck is smaller than the diameter of the wall portions (Fig. 1). Also the container is made of PET ([0002]).

Hideaki et al. does not explicitly disclose the presence of feet in the bottle. Beck et al. discloses a bottle bottom configuration with five separate feet (Fig. 5), which facilitates improved stability when the bottle is placed vertically onto a flat surface (See Abstract). The inventions of both Hideaki et al. and Beck et al. are drawn to the field of blow molded PET bottles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the unspecified bottom of the bottle of Hideaki et al. by using the bottom configuration as taught by Beck et al. with its multiple legs for the purposes of imparting improved stability when the bottle is placed vertically onto a flat surface.

Regarding the thickness limitations, Hideaki et al. discloses that the walls, 3, to the bottom, 4, have a thickness of between 20 and 50 micrometers while the un-stretched neck portion has a thickness of between 200 and 500 micrometers ([0007]-[0010]). Hideaki et al. does not disclose a thickened bottom portion as instantly claimed. Beck et al. shows that a structurally resilient bottom portion structure. The thickness of the wall portions, D1, and the tip of the feet, B, are relatively thin compared to the thickness in between the feet portions, A, (Fig. 3). The added thickness in the bottom portion provides extra stability to the bottle for when the bottle is set down on a table or dropped on the floor (i.e. one having ordinary skill in the art would find if obvious that the bottom of a bottle benefits from added structural support). Hideaki discloses that the bottle of his invention has two wall thicknesses: a structurally stable wall thickness of 0.2-0.3 mm (i.e. for the shoulders of the bottle as seen in Fig. 1 and 2) and a

ultra thin thickness of 0.02-0.05 (See Claim 1). Hence to create the structurally stable bottom portion for the bottle of Hideaki (as would be obvious to one having ordinary skill as explained above) the wall thickness of 0.2-0.3 mm would be used in the thicker bottom portions (i.e. in between the feet) and the wall thickness of 0.02 to 0.05 would be used for the thinner portions (i.e. the feet and the container walls). Moreover, while Beck et al. shows the general structure of the bottom of a container, the exact thicknesses of the various portions of the container would have been adjusted by one having ordinary skill in the art to provide both adequate structural support and still reduce the cost to manufacture as much as possible.

Regarding the volume per gram of PET of the bottle of modified Hideaki et al, while modified Hideaki et al. does not explicitly mention that the volume/gram is within the claimed range, given the disclosure towards using less resin to achieve equivalent volume containment ([0003]), and given the substantially similar wall thickness, one having ordinary skill in the art would optimize the volume of the container in relation to the amount of PET used in the container by altering the shape and wall thickness of the container in order to reduce production costs of the container.

Regarding the weight ratio of the weight of the wall section compared to the weight of the bottom section, while modified Hideaki et al. does not explicitly state that his bottle has a ratio which falls within the claimed range, one having ordinary skill in the art would have optimized the weight of the wall portion of the container to the bottom portion of the container as part of the general design process for determining the shape and wall thickness of various parts of the container, (as explained above).

While modified Hideaki does not explicitly disclose the semi-crystalline nature of the PET used in their bottles, one having ordinary skill in the art of blow molded PET bottles would realize that semi-crystalline PET is conventionally used for blow molding operations due to is advantageous rheological properties (See for example Hutchinson et al., [0007]).

The bottle of modified Hideaki has a greater section in that there is a maximum diameter of the bottle along its walls.

The bottle of Hideaki also has a screw cap (Fig. 1) which reads on the instant means for closing (instant specification page 11).

Additionally, with respect to claims 3, 11 and 19, Hideaki et al. discloses that the walls, 3, to the bottom, 4, have a thickness of between 20 and 50 micrometers while the un-stretched neck portion has a thickness of between 200 and 500 micrometers ([0007]-[0010]). With respect to claim 5, Beck et al. discloses that each foot part has an increased thickness part (Fig. 3, A, and Table 1). With respect to claim 7, Blow molded bottles of the type in Hideaki et al. and Beck et al. are designed to hold beverages (i.e. liquid). With respect to claim 8 and 9, when filed with such a liquid and closed, the bottle of modified Hideaki et al. would be designed under the conventional requirement of beverage containing blow molded bottles to be substantially highly resistant to the loads typically associated with handling and shipping (i.e. incompressible), including those recited in instant claim 9. With respect to claims 10 and 18, the body of the bottle has a substantially cylindrical shape (Fig. 1). Numerous external aesthetic adornments, including pad printing of images or indicia, would be obvious to one having ordinary skill as providing increased commercial appeal.

With respect to claims 13 and 21, regarding the ratio of the diameter of the body to the neck (including the maximum diameter of the body, i.e. d_1 to d_2), one having ordinary skill in the art would have adjusted, through routine experimentation, the ratio of the neck opening to body diameter in order to control the aesthetic appeal of the finished bottle and in order to optimize the speed at which the bottle could empty its liquid contents and the total time required for the bottle to empty its contents.

With respect to claims 14 and 22, regarding the ratio of the height of the neck and the height of the body, one having ordinary skill in the art would have adjusted, through routine experimentation, the height ratio of the neck to the body in order to control the aesthetic appeal of the finish bottle and in order to optimize the total volume of the container in relation to the strength of the closure mechanism of the bottle (i.e. the higher the neck length the more area there is for engagement between the twist top type closure commonly associated with blow molded PET bottles and the bottle itself).

Claims 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideaki et al. (JP 2001-122237), see translation, in view of Beck et al. (U.S. 5614148) in view of Hutchinson et al. (U.S. 2003/0031814), as applied to claims 4 and 6 above, and further in view of Schaupp et al. (U.S. 2002/0185212).

Regarding claims 12 and 20, modified Hideaki discloses all of the limitations as set forth above. Modified Hideaki does not explicitly disclose that the bottles be adorned with printed images. Schaupp et al. discloses an apparatus which allows for the pad printing ([0014]) of bottles (See Abstract) which one having ordinary skill in the art would appreciate to be advantageous because the printed image results in improved aesthetic appeal to the consumer.

Hence it would have been obvious to have pad printed images onto the bottle of modified Hideaki as taught by Schaupp et al.

(10) Response to Argument

Appellants argue that the cited figures in the Beck reference are not drawn to scale; however the relative thicknesses of the portions of the bottom foot structure of Beck are disclosed (See Fig. 1, Thickness A, Thickness D1, Thickness B, etc.).

Appellants argue that the combined references (Beck and Hideaki) do not disclose the claimed thickness of the walls of the body, the parts of the bottom between the feet and the feet themselves. This is not so. Hideaki discloses a method of producing a bottle with structurally stable, thick wall portions (the neck and shoulder regions of Fig. 1 and 2 having a thickness of 0.2-0.3 mm) and deformable, thin wall portions (the crushed body regions of Fig. 1 and 2 having a thickness of 0.02-0.05 mm). Hideaki does not disclose any particular related to the bottom of the container. Beck discloses a stable configurations for the feet at the bottom of a blow molded container (Fig. 3). The stable configuration has a thick portion (thickness A) and thin portions (thicknesses D1, D2, B and C). It would have been obvious to have used the foot arrangement of Beck with its relatively thick and thin portions in the bottle of Hideaki to make the bottle more structurally sound when set on a surface. It would have also been obvious to have used the structurally sound thicknesses of Hideaki (0.2-0.3 mm) in the portions of the foot structure of Beck which are meant to have increased thickness (thickness A from Fig. 3) and to have used the thin portions of Hideaki (0.02-0.05) in the portions of the foot structure of Beck which are meant to have decreased thickness (thicknesses D1, D2, B and C) to provide adequate structural support while still reducing the overall amount of PET used. The thick thickness of Hideaki is shown to

be structurally stable because it does not deform (Fig. 1 and 2). Put simply, it would have been obvious to have used the relative thicknesses in the foot structure of Beck for the foot structure of Hideaki with the specific thicknesses of Hideaki to make the bottom of the bottle stronger while still reducing the amount of PET used. In using the thickness of Hideaki in the arrangement of Beck the instantly claimed thicknesses would be achieved because part of the bottom would be thick (0.2-0.5 mm) and the walls and the feet would be thin (0.02-0.05 mm).

Appellant argues that Beck teaches different thicknesses, specifically citing an example for a well known 2-Liter bottle. These thickness are merely examples and even so, the thickness used in Hideaki would be obviously advantageous over the thickness of Beck because they can reduce weight while still being structurally stable. The specific numeric thickness cited by appellant from the Beck reference are not used in the combination of the references.

Appellant argues that using a reduced amount of material in the bottom of the bottle is taught away from by Beck and that it would be non-obvious redesigning of the bottle. The examiner disagrees. Hideaki shows that the reduction of materials can be used to create a stable bottle and the general design of the bottom foot portion is clearly laid out in Beck. Using the thickness of Hideaki in the foot arrangement set forth by Beck would not be a non-obvious redesign of the bottle but rather an obvious combination. Appellants argue that the disclosure of a "reinforcing ring" somehow precludes the combination. The examiner does not see how this reinforcing ring teaches away from the combination with Hideaki. It does not seem that the reinforcing ring has any effect on the final thicknesses used to create the foot parts and it does not seem that the ring could not be incorporated into the foot parts of the bottle of Hideaki (along with the general thick/thin wall arrangement of the foot parts). Appellants argue that Beck

discloses it is not routine to reduce the amount of material used in the bottom portion of the bottle. The cited portion discloses that "merely reducing weight is insufficient to obtain a structurally sound bottle." The combination of references in the rejection does not "merely reduce the weight" used in the bottom of the bottle but rather uses the particular arrangement of thick and thin portion disclosed in Beck to achieve a structurally sound bottom portion with the reduced thicknesses of Hideaki. Also, it is not clear what a "structurally sound" bottle is considered to be in the cited portion of the Beck reference. Some sacrifice of structural soundness can be made to use less material and in so doing it would be obvious to use the material as effectively as possible (i.e. by arranging the thick and thin portions at the locations taught by Beck). Since the bottom of Hideaki with its thin walls (Fig. 1 and 2) is stable before being crushed, there is no reason to think that adding thickness to part of the bottom, as taught by Beck, would be less stable.

Appellants argue that the claims require "between 100 and 200 microns" whereas the thick portions of Hideaki are between 0.2 to 0.5 mm (i.e. between 200 and 500 microns); however, in making the thick bottom portion (thickness A) of Beck have a thickness of 200 microns, as the thickness gradually decreases towards the thin foot parts (thickness B) there would be "a part" of the bottom which would have a thickness within the claimed range (the claims only require "a part" of the bottom).

Appellants argue the examiner has used impermissible hindsight. This is not so. The motivation for the combination of the references is derived from the references themselves (Hideaki not disclosing a particular bottom configuration and Beck disclosing a particularly stable bottom configuration).

Turning to the "ratio weight of the walls to the weight of the bottom" limitation, appellant argues that the references do not disclose a bottle with these values; however, the examiner has explained in the rejection that through the routine process of adjusting the shape and size of the container from the combined art references (as explained above) one would arrive at the instantly claimed range. By simple example, if the bottle of the combined references were made very tall and very narrow, there would be very large amount of PET used in the walls compared to the amount of PET used in the bottom. Conversely, if the bottle were made very short and very wide in diameter, the amount of PET used in the walls would be very low whereas the amount of PET used in the bottom would have to be very large. It is even conceivable that a container with no walls and which only comprises a neck, shoulders and a base, could be made. Hence the ratio of weight of PET used in the walls and the bottom could range practically from zero to 10 or 100 depending on how tall and narrow or short and fat one having ordinary skill would make the bottle. The alteration of the design would be obvious to adjust the marketability of the bottle. The examiner also notes that it is not clear where the "walls" of a container end and the "bottom" begin and therefore a variety of different bottles could read on the claimed range merely by adjusting what is considered the boundary of the wall and the bottom. Appellant argues that adjusting weight of the walls to the weight of the bottom is not a recognized result effective variable however, adjusting the size and shape of the bottle, as set forth in the rejection, is clearly a routine aspect of putting a bottle to the market and therefore the resulting weight ratio would be correspondingly adjusted.

Likewise, with respect to the volume to weight ration of the bottle, simply by adjusting the size and shape of the bottle, one having ordinary skill would have arrived at the claimed

range. A tall slender bottle would be less efficient at holding a volume of liquid and would have a low volume to weight ratio whereas a bottle that is short and round would hold a larger quantity of volume and have a higher ratio. In the same process of optimizing the shape and size of the bottle, the ratio would be arrived at as the wall/bottom weight ratio was arrived at, as explained above.

While simply adjusting the shape and size of the container would result in one having ordinary skill arriving at the claimed ratios (volume/weight and wall/bottom ratios), given the substantially similar thickness used in the combination of prior art to that of the instant application, the use of conventional shapes and sizes would likely read on the claimed ranges.

Finally, appellant argues against the Hutchinson references on the grounds that no particular crystallinity is disclosed. While no particular crystallinity is claimed, appellant argues that without a specific crystallinity, the adjustment of the size and shape of the bottle would not result in the claimed ranges of ratios; however, the range of densities for different crystalline levels of PET is not significant enough to make bottles made with different densities unable to fall within the claimed ranges of ratios (See the instant specification, page 11). In short, any of the semi-crystalline densities of PET, if used in the bottles of the combined references, would read on the claimed ratios if the size and shape of the bottle were routinely altered. Appellant also argues that Hutchinson needs to be considered to see if it teaches away from the other references. The reference does not teach away from the other references and appellant provides no evidence that it does. Hutchinson was merely cited to show that blow molded bottle of PET are made with semi-crystalline PET (which would have been obvious to one having ordinary skill independent of the Hutchinson reference).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Michael B Nelson/

Conferees:

/Angela Ortiz/

Supervisory Patent Examiner, Art Unit 1798

/Christine Tierney/

Supervisory Patent Examiner, Art Unit 1700